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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,729	08/28/2003	Koichi Shimizu	826.1891	5709

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EXAMINER	
LAY, MICHELLE K	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/649,729	SHIMIZU, KOICHI	
	Examiner	Art Unit	
	Michelle K. Lay	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/21/2006 has been entered.

Response to Amendment

The amendment filed 04/21/2006 and 03/22/2006 has been entered and made of record. The amendment to the specification filed 03/22/2006 has overcome the drawing objections made in the final office action filed 11/22/2005. Claims 1-27 are pending.

Response to Arguments

Applicant's arguments filed 03/22/2006 have been fully considered but they are not persuasive.

Applicant argues Isaacs, Issacs in view of Brittain, or Issacs in view of Brittain in further view of Schuur fails to suppress the points/lines within the model. However, Applicant's disclosure fails to provide support for such a limitation and thus, prior art has not been applied to the limitation within the claims.

Specification

The amendment filed 03/22/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Claims 1, 9, and 17 have been amended to include the limitation of "displaying the simplified model so that when an angle of normals ... is smaller than a predetermined value a line between the adjacent planes is maintained in the model and not displayed". Although Applicant's specification discloses overlaying the simple and complex models on top of each other where either or can be translucent while the other is not, Applicant's disclosure fails to provide support for maintaining a line between adjacent planes within the model even though it is not being displayed [pg. 12-14].

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims **1**, **9**, and **17** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. Claims 1, 9, and 17 have been amended to include the limitation of "displaying the simplified model so that when an angle of normals ... is smaller than a predetermined value a line between the adjacent planes is maintained in the model and not displayed". Although Applicant's specification discloses overlaying the simple and complex models on top of each other where either or can be translucent while the other is not, Applicant's disclosure fails to provide support for maintaining a line between adjacent planes within the model even though it is not being displayed [pg. 12-14].

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims **1-5**, **9-13**, **17-21**, and **25-27** are rejected under 35 U.S.C. 102(b) as being anticipated by Isaacs (5,894,308).

Claims **1**, **9**, and **17** are disclosed by the invention of Isaacs. Isaacs teaches of a method, system, and program for altering the number of polygons used to create a 3D graphic object such that a simplified model of the original complex 3D object is created. A computer setup for running software allows a user to view and create 3D objects [col. 5, lines 8-17]. The Polygon Reduction Editor is a tool that allows a user (or 3D content developer) to reduce the polygon count within models of 3D graphic objects in an

interactive and real time manner [col. 5, lines 20-24]. Furthermore, the program of Isaacs is being embodied as a graphical user interface [col. 5, lines 31-34]. Thus, Isaacs teaches that his invention includes a method, apparatus, and program for altering the number of polygons used to create a 3D graphic object. The latter four techniques (3-6) each may be used separately or together in various combinations of two or more. In addition, these four techniques may be used in conjunction with either or both of two additional features: (a) locking user-selected points in the 3D graphic object and (b) conserving surface boundary edges in the 3D graphic object [col. 7, lines 21-26]. Thus, points from the detailed shape are selected. Triangular planes are generated to represent the 3D object that are configured in part by apex points of the 3D object in each of the three dimensions [col. 7, lines 38-54]. Thus, select points on the 3D object are used to generate a plane in the bounding box or octahedron techniques as described by Isaacs. Figs. 5 and 6 show a model-generating window in which a simplified model corresponding to a detailed 3D object is created composed of the apex points that indicated the generated triangular planes. Additionally, Isaacs discloses "Discard Points by Curvature" where the polygon reduction algorithm measures the dihedral angle between each adjacent part of triangles and removes those points that touch only upon edges having dihedral angles less than the value chosen by the user [col. 11, lines 8-47].

In regards to claims **2**, **10**, and **18**, Isaacs describes the use of a mouse pointer in the system. Typically, a cursor control device such as a mouse is used to manipulate

widgets 407-449 although any other input device could be used for this purpose [col. 5, lines 51-54]. Furthermore, Isaacs teaches of locking user-selected points in the 3D object [col. 7, lines 21-27]. The mouse is used to select the user-selected points for locking purposes. When it is desired to use the Lock/Unlock Points feature to reduce the number of triangles in the 3D image, the user clicks on the Lock/Unlock Points button 411 thereby causing a mark 701 to appear in the box indicating that the feature is active, as shown in FIG. 15a. Using the cursor or other input device, the user then selects one or more strategic points in the 3D object that, when preserved, maintain the integrity of the image [col. 10, lines 30-37].

In regards to claims **3-5**, **11-13**, and **19-21**, Issacs teaches that although 3D objects in the Polygon Reduction Editor are modeled using only triangles, the techniques described here may be applied to any other class or combination of classes of polygons (e.g., rectangles) to achieve similar results [col. 7, lines 9-12]. Thus, Isaacs teaches that the simplified model may be configured by a plurality of polygons such as triangles or quadrangles.

In regards to claims **25-27**, Issacs describe generating triangular planes to represent the 3D object that are configured in part by apex points of the 3D object in each of the three dimensions [col. 7, lines 38-54]. Additionally, Issacs teaches of conserving surface boundary edges of the original 3D graphic object [col. 7, lines 21-27]. Furthermore, teaches of a process in which edges of the original object are preserved or discarded

based on length [col. 8]. Thus, the simplified model is created using data composed of data of selected points, lines connecting the points, and therefore data of a plane described by the points and lines.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **6**, **7**, **14**, **15**, **22**, and **23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Isaacs (5,894,308) in view of Brittain et al. (6,072,498)

Isaacs teaches of the invention of claims **6**, **14**, and **22** except wherein a simplified model configured by selected points is displayed in a display region different from the detailed shape. Column 10, lines 25-43, teach of selecting points on a display screen on which a detailed 3D object is displayed. Column 12, lines 64-67, and column 13, lines 1-14, discloses a viewing button such that when selected, the user is able to alter the viewpoint of the 3D object through mouse movements and button clicking techniques. The invention of Brittain et al. teaches of a user selectable degradation technique for creating a simplified model of a complex object. Figures 4a-4d teach of displaying different views of a graphical object in separate windows. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Isaacs to include displaying different viewpoints of the 3D object

in separate windows as in Brittain. One would have been motivated to make such a modification to the invention of Isaacs so that a user may be able to simultaneously view the alternate viewpoints of the 3D object as offered by Isaacs. Additionally, element 330 shows a selected object in which a simplified model will be created. Figure 4c shows the graphical element with a simplified bounding box surrounding it in the active frame while the other inactive frames show only the simplified bounding box representing the complex object. Column 8, lines 13-26, describes rendering objects in a simplified manner in response a reduction in frame rate due to object manipulation or increased computational load due to background tasks. Thus, the invention of Brittain includes displaying a simplified model in a display region different from the detailed object. Column 5, lines 19-23 of Isaacs, describes the polygon reducing invention as being interactive in real time. Column 6, lines 53-67, and column 7, lines 1-8, describe the real time interactive nature of the invention being diminished if the 3D object under consideration is sufficiently complex. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Isaacs to include displaying the simplified model configured by selected points in a display region different from the detailed 3D object as in Brittain. One would have been motivated to make such a modification to Isaacs such that during computational intensive tasks in the invention of Isaacs the alternative viewpoint images may be temporarily replaced by simplified models, thus reducing the processing required for displaying the alternative views and allowing more processing to be performed on the reduction calculations.

Isaacs teaches of the invention of claims **7**, **15**, and **23** except wherein the simplified model is overlaid on the detailed shape and displayed. Figure 4c, of Brittain, shows a simplified bounding box model of a complex object in which the simplified model is overlaid on the complex shape and displayed in such a manner that the complex object is still viewable while being overlaid by the bounding box. Thus, the invention of Brittain teaches of drawing a simplified bounding box translucently overtop the complex object. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Isaacs so that the simplified model was drawn translucently and laid overtop the complex 3D object as in Brittain. One would have been motivated to make such a modification to the invention of Isaacs so that a user could more easily determine a suitable level of simplification with respect to the original 3D object by comparing the simplified and complex shapes simultaneously in the same frame.

3. Claims **8**, **16**, and **24** are rejected under 35 U.S.C. 103(a) as being unpatentable over to Isaacs (5,894,308) in view of Brittain et al. (6,072,498) as applied to claims 7, 15, and 23 above, respectively, and further in view of Schuur et al. (5,504,853).

Isaacs and Brittain, as applied to claims 7, 15, and 23 teach of the invention of claims **8**, **16**, and **24**, respectively, except wherein the simplified model and the detailed shape are displayed in different colors. The invention of Schuur et al. teaches of overlaying a mark on a figure by a user with a specific pattern and color as described in

column 7, lines 36-55. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Isaacs to include allowing the overlaid simplified model to be drawn with a specific color so as to stand out form its corresponding complex shape as in Schuur et al. One would have been motivated to make such a modification to the invention of Isaacs so that while comparing the two overlaid images, a viewer would be better able to discern between the two models.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle K. Lay whose telephone number is (571) 272-7661. The examiner can normally be reached on Monday-Friday 7:30a-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee M. Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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